

REMARKS

Reconsideration of the subject application in view of the preceding amendments and the following remarks is respectfully requested. Claims 1-3, and 7-9 are pending in this application. Claims 4-6 were previously cancelled. Claims 1 and 8 have been amended herein to further define and more particularly point out the subject matter regarded as inventive. Support for the amendments can be found throughout the application as filed and it is respectfully submitted that no new matter has been introduced by this amendment.

Rejections under 35 U.S.C. § 102

Claims 1-2, and 7-9 were rejected under 35 U.S.C. § 102(b) over Japanese Patent Application No. 08054067A to Kinoshita et al. (hereinafter "Kinoshita"). Kinoshita describes a full split type mechanical seal. The mechanical seal includes a seat ring (15), which is a static element, and seal ring (17) which is a rotary seal element (see Abstract). A sliding, sealing interface is formed where ring (15) abuts (at S) against ring (17) (paragraph [0013]). A retainer ring (20) is integrally fastened against seal ring holder (18), which in turn braces the outer peripheral surface of the seal ring (17) (Abstract). Drive ring (22) is integrally coupled to retainer ring (20) by drive pins (bolts 24) (see Abstract and paragraph [0014]). As shown in Fig. 1, bolts (24) threadably engage a bore in retainer ring (20) (compare Fig. 5, which shows no clearance between bolts (24) and retainer ring (20)). Moreover, bolts (24) engage tightly within corresponding bores in drive ring (22), as shown in Fig. 6. Drive ring (22) is fastened to rotatable shaft (11) by set bolts (23) (paragraph [0014] and Fig. 6). In this configuration, seal ring (17) follows as shaft (11) rotates. Drive ring (22) and retainer ring (20) are each divided

into two sections integrally fastened against each other so as to be removable by separating the two sections (see abstract as well as Figs. 5 and 6).

In contrast, amended Claim 1 recites a divided driver device for a mechanical face seal. The driver device is axially sub-divided into a radially divided retaining ring for retaining a seal ring and a radially divided mounting ring for mounting to a rotary component. The retaining ring and the mounting ring are coupled together with play in at least the circumferential direction by at least one drive pin. The at least one drive pin projects axially from an axial end face of one of the mounting and retaining rings and engages, in a loosely seated manner, in a recess defined in an adjacent end face of the other of the mounting and retaining rings.

Kinoshita does not teach, suggest, or disclose the divided driver device recited in amended Claim 1. In particular, Kinoshita fails to describe the retaining ring and the mounting ring coupled together with play in at least the circumferential direction by at least one drive pin projecting from one of the rings that engages, in a loosely seated manner, in a recess defined in an adjacent end face of the other ring, as recited in amended Claim 1. Instead, Kinoshita discloses a connection that is rigid in the circumferential direction between the retaining and mounting rings, as shown in Figs. 1, 5, and 6.

In Kinoshita, the mounting ring (22) is secured by means of bolts (24) to the retaining ring (20). As shown in cross-section in Fig. 1, bolts (24) are threaded to retainer ring (20). As shown in Fig. 5, the threaded engagement of bolts (24) and retainer ring (20) does not have clearance or a recess to allow circumferential play. Bolts (24) also fit tightly into corresponding bores in drive ring (22), without clearance or recesses therebetween to allow for circumferential play, as shown in the cross-section of Fig. 6. The connection of driver ring (22), bolts (24), and

retainer ring (20) is thus a rigid (rather than loosely seated) engagement in at least the circumferential direction. Therefore, it is respectfully submitted that there is no room for play in the circumferential direction between rings (20, 22) and that Kinoshita fails teach, suggest, or disclose a loosely seated coupling between the drive pin and recess of the retaining and mounting rings, as recited in amended Claim 1.

Amended Claim 8 recites a divided mechanical face seal having, *inter alia*, a retaining ring and a mounting ring. The retaining ring and the mounting ring are coupled together with play in at least the circumferential direction by at least one drive pin. The at least one drive pin projects axially from an axial end face of one of the mounting and retaining rings and engages, in a loosely seated manner, in a recess defined in an adjacent end face of the other of the mounting and retaining rings, just as recited in amended Claim 1. It has been established above with respect to amended Claim 1 that Kinoshita does not describe such a mounting ring and retaining ring coupled in a loosely seated manner with play in at least the circumferential direction.

Since Kinoshita does not teach, suggest, or disclose each and every element recited in amended Claims 1 and 8, it is respectfully submitted that Kinoshita does not anticipate amended Claims 1 and 8. Claims 2 and 7 depend from amended Claim 1 and thus include all the elements recited in amended Claim 1. Claim 9 depends from amended Claim 8 and thus includes all the elements recited in Claim 8, as presently amended. Therefore, it is respectfully submitted that for at least the foregoing reasons, Kinoshita does not anticipate Claims 1-2 and 7-9. Withdrawal of the rejection under 35 U.S.C. § 102(b) is therefore respectfully requested.

Rejections Under 35 U.S.C. § 103

Claim 3 was rejected under 35 U.S.C. § 103(a) over Kinoshita. Kinoshita has been described above. Claim 3 recites a driver device according to Claim 2, wherein the peripherally aligned end faces of the retaining ring have a roughness $\leq 1.0 \mu\text{m}$, preferably $\leq 0.8 \mu\text{m}$, and most preferably $0.5 \mu\text{m}$.

Kinoshita does not disclose the particular roughness of the end faces recited in Claim 3, as per Page 4 of the Office Action. Further, it has been established above that Kinoshita does not teach, suggest, or disclose each and every element recited in Claim 1, as presently amended. Claim 3 depends from amended Claim 1 and thus includes all of the elements recited in Claim 1, as presently amended. Therefore, in addition to failing to disclose the roughness, there are whole other elements of Claim 3 that Kinoshita fails to teach, suggest, or disclose. Therefore it is respectfully submitted that Kinoshita does not anticipate or render obvious Claim 3, and there is no *prima facie* case of obviousness with respect to Claim 3 based on Kinoshita. Withdrawal of the rejection under 35 U.S.C. § 103(a) is therefore respectfully requested.

CONCLUSION


It is respectfully submitted that none of the prior art of record, alone or in combination, teaches, discloses or suggests the invention as presently claimed. Based upon the foregoing, favorable consideration of Claims 1-3 and 7-9 is respectfully requested.

If it is believed that an interview would advance prosecution, the Examiner is invited to call Applicants' representative at the number below. Likewise, if the Examiner disputes the patentability of any of the pending Claims, Applicants respectfully request an interview with the Examiner to discuss why the Claims are patentable.

It is respectfully submitted that this response is timely filed. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105, under Order No. 62909(51994).

Respectfully submitted,

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Joshua L. Jones, Reg. No. 57,044
Intellectual Property Practice Group
EDWARDS ANGELL, PALMER & DODGE LLP
P.O. Box 55874
Boston, MA 02205
Tel: (203) 353-6870
Fax: (866) 255-3049
Customer No. 21,874
Attorneys/Agents for Applicants